

screenings of high school students conducted by the schools and the New Orleans Sickie Cell Screening Program; (5) Inclusion of blood pressure screening in the New Orleans Parish School Board's Early Periodic Screening Detection and Therapy program; (6) Institution of an Adolescent Hypertension Clinic by Charity Hospital of New Orleans (an adult hypertension clinic already existed).

Most significant has been the establishment of a high blood pressure control program, taken from the recommendations put forth at the workshop, which was approved and

funded in 1975 by the state legislature. Future workshops are now being planned for other areas of the state in order to form coordinated efforts for education, screening, diagnosis, and therapy for high blood pressure.

A final result of the workshop has been the realization that hypertension is one of the major areas of concentration by the local health planning agency. This will assure continued support for the various hypertension control activities when federal legislation approves support through various programs to be channeled through state health departments.

Absenteeism in Primary School: Poverty Factors and Ethnicity

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There have been many studies of school attendance.¹⁻¹³ However, they have either dealt with absences in the aggregate, without attempting to categorize them, or they have considered only a few factors at the time (number of children in the family, ethnic origin) without controlling for the other relevant factors. No reliable quantitative measure of the relationship between poverty factors, ethnic origin, and school attendance can be derived from these studies. The study which is described here is an attempt to bridge this gap.

The data used in this research were collected by the Department of Medical Ecology in the Hebrew University-Hadassah Medical School in Jerusalem, Israel. The data consisted of detailed demographic information of the families of 1,000 Jewish children between the ages of seven to eleven attending grades two to five in five primary schools in Jerusalem. In addition to demographic data, each absence was recorded together with its cause and duration for the school year 1969-70.

This information was collected each morning by a nurse who listed the names of the children absent in the five schools and who visited their homes in the afternoon. The reason for absence was generally given by the parents of the child, if they were at home, or by the child, if they were not.

A relatively high proportion of the children in this study were from low social class background. The mean number of years of formal education of their parents was 6.5 years, and 44 per cent of the children had at least one parent who did not finish elementary school.

Most of the parents of these children were immigrants. The most frequent geographic origins and the percentage of parents in each group are listed in Table 1.

The mean number of days of absence per child was 8.2 (with a standard deviation of 7.2) and the mean number of episodes of absence per child was 3.9 (with a standard deviation of 3.2).

Six types of medical reasons (respiratory infections, abdominal pains, headache, medical examination, toothache, pain in arm or leg) and five types of nonmedical reasons (helping at home, truancy, family event, excursions, and educational reason) accounted for 70 per cent of the days of absence from school and for 72 per cent of the episodes of absence.

In order to estimate the duration of absence attributable to poverty factors or ethnic background of the children, while controlling for the other relevant factors, multivariate regression analysis was used. One regression was run for each type of absence. The dependent variable was the number of days of absence of each pupil of the five schools during the year 1969-1970. The explanatory variables included: (a) socioeconomic measures (level of formal education of the parents, their occupation, number of children sleeping in the

TABLE 1—Percentage of Parents by Country of Origin

| Country | Per Cent |
|--------------------------|----------|
| Morocco | 37.8 |
| Iraq | 18.4 |
| Europe | 9.0 |
| Israel | 6.1 |
| Mixed origins and others | 28.7 |
| Total | 100.0 |

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same room, whether the family is on welfare); (b) personal characteristics of the child (sex and grade, the latter being taken as a substitute for the age of the child); (c) ethnic characteristics (country of origin of the parents, year of their immigration); (d) the school attended (this is to control for possible significant variation in absenteeism among the schools due to extraneous factors, for instance a "flu" epidemic in one of the schools); and finally, (e) interaction terms between sex and ethnic origin and sex and grade.*

The regression analysis was essentially "non-helpful" as an explanation of total absenteeism variance (less than 10 per cent of the variance was explained) in spite of the statistical significance of the regressions. This showed that the variation of absenteeism within each socioeconomic or ethnic group is large.

Nevertheless socioeconomic variables were strongly statistically significant, and in an unexpected direction.

Indeed, since children of poor families have been found more subject to disease than children of wealthier families,^{14, 15} we expected children of poor families to be absent longer and more frequently for medical reasons than children of the more affluent. We also expected absences for non-medical reasons to be more frequent for children of poor families.

Contrary to expectation, children of poor family background (in terms of housing conditions, occupation, and formal education of the parents) were absent from school two days *less* on average, than children of wealthier background. This finding was in contradiction with that of other studies,^{3, 9} but in agreement with that of Halevi.⁶

Most of this absentee difference between children of poor family background and the better-off is attributable to the discrepancy in absences for respiratory infections between the two groups. In his study of absenteeism in schools located in neighborhoods of different socioeconomic status, Davies¹² also found that the mean days of absence for upper respiratory infections decreased continuously from schools located in highest socioeconomic neighborhood to those located in the lowest socioeconomic neighborhood.

The most likely explanation is that the higher rate of absences for medical reasons of children of better-off families is a reflection of a difference in norms related to symptoms of illness.¹⁶ Davies¹² mentioned the clinical impression that poor children are more likely to attend school with coughs and colds than are children from higher socioeconomic origins. A similar explanation—a change in the attitude to the utilization of health services, and not a change in the general level of health—was given by Moore and Frank¹¹ to explain the increase of mean days of school absences following the establishment of health services in one area of Massachusetts.

The difference in absences for nonmedical reasons between children of poor family background and the better-off is not as pronounced as the difference in absences for medical reasons; it also acts in the expected direction, that is, chil-

dren from poor background miss school more for non-medical reasons than the better-off.

Medical reasons account approximately for one-half of the absences of children of poor families, and for three-fourths of the absences of children whose families are better-off.

Altogether, the mean days of absences for children of poor families is low when compared with the results of other studies (13 days for children of low-income Spanish-speaking families attending primary schools in Brownsville, Texas,⁵ and 18.5 days per year for children living in low-income housing projects and attending primary schools in Pittsburgh, Pennsylvania).⁷ The relatively low incidence of absence might reflect the importance the Israeli government and population at all social levels attaches to formal education¹⁷ as well as the intensive policy of preventive health services of the Israeli government.

Another variable that proved strongly significant statistically was the sex of the child. Girls were found to miss school more often than boys, especially for respiratory infections. This finding is in accordance with other studies.^{9, 10} No evidence exists to suggest that for the age group considered, girls are weaker than boys (in their studies, Downes¹⁸ and Jackson¹⁹ found that girls between 7 and 11 years old had equal or lower morbidity than males). Therefore, one can only conclude that the larger number of absences for medical reasons of girls as compared to boys is likely to be a consequence of the application of more stringent criteria as to what constitutes illness for the latter.

The difference between sexes in the rate of absence for nonmedical reasons is generally not significant. The ethnic variables were not generally significant in explaining absenteeism for either medical nor nonmedical reasons.

In summary, this study demonstrated that school absenteeism is a reflection of many factors that are not necessarily correlated with socioeconomic or ethnic variables. Even absenteeism for medical reasons is subject to cultural variation, and is not necessarily related to the real level of general health. The meaning of school absenteeism data must therefore be interpreted with great caution.

REFERENCES

1. Douglas, J. W. B. *The Home and the School: A Study of Ability and Attainment in the Primary School*. London: Mac Gibbon and Kee, 1964.
2. MacMillan, R. W. *A Study of the Effect of Socioeconomic Factors on the School Achievement of Spanish-Speaking School Beginners*. Paper presented at the International Reading Association Conference, Boston, Mass. April 24–27, 1968.
3. Basco, D. Epidemiologic analysis in school population as a basis for change in school-nursing practice—report of the second phase of a longitudinal study. *Amer J Public Health*, 62:491–496, April 1972.
4. Bransby, E. R. Effect of certain social conditions on the health of school children. *Brit Med J*, 2:767, 1946.
5. HEW. *A Study to Compare the Scholastic Attendance and the Scholastic Achievement of First Grade Students Whose Parents Participated in the Adult Basic Education Program with the Scholastic Attendance and the Scholastic Achievement of First Grade Students whose Parents did not Participate in the Adult Basic Education Program*. Brownsville Consolidated Independent School District, Texas Education Agency, Austin, 1969.

*Details of the regression analysis available on request to author.

6. Halevi, H. S. Absenteeism in elementary schools in Jerusalem. *Riv Ital Med Ig Della Scuola*, 9:115-146, 1963.
7. Kaplan, R., Lave, L. B. and Leinhardt, S. The efficacy of a comprehensive health care project: an empirical analysis. *Amer J Publ Hlth*, 62:924, 1972.
8. Linde, J. I. Causes of absenteeism in New Haven Schools. *Pub Hlth Rep* 65:1737-43, 1950.
9. Metropolitan Life Insurance Company School absenteeism. *Statis. Bulletin* 31. New York, 1950.
10. Rogers, K. D. and Reese, G. Health studies—presumably normal high school students—absence from school. *Amer J Dis Child*, 109:9-27, 1965.
11. Moore, G. T. and Frank, K. Comprehensive health services for children: an exploratory study of benefits. *Pediatrics*, 51:17-21, 1973.
12. Davies, A. Michael. Primary prevention of rheumatic fever in Jerusalem school children. *Israel J Med Sci*, 4:801-808, 1968.
13. Health Statistics From the U.S. National Health Survey. Disability Days, July 1957-June 1958—Series B-10, Washington, 1959.
14. Eichorn, R. L. and Ludwig, E. G. Poverty and health in poverty in the affluent society. H. H. Meissner, Ed., New York: Harper & Row, 172-180, 1966.
15. Hoff, W. Why health programs are not reaching the unresponsive in our communities. *Pub Hlth Rep* 81:6540-6580, 1966.
16. Morrell, D. C. Symptom interpretation in general practice. *J. R. Coll. Gen. Practnrs.*, 22:297, 1972.
17. Robinsohn, J. B. Problems of education in Israel. *Comp. Educ. Review* 7:125-148, 1963.
18. Downes, J. Cause of illness among males and females. *Milbank Mem. Fund Quart.*, 28:407-428, 1950.
19. Jackson, E. Morbidity among males and females at specific ages. Eastern Health District of Baltimore. *Milbank Mem Fund Quart.*, 28:429-448, 1950.

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Short Summer Course in COBOL Programming and Techniques

The EDP Clinic, SUNYA of the State University of New York at Albany announces a two week, short summer course in COBOL programming and techniques. The course is instructional in nature and develops the basic principles and techniques applied to practical cases starting from beginning foundations. The course will be conducted the weeks of August 16th and August 23rd, 1976 at the University campus in Albany, New York. It is designed to be of maximum practical use to the banking, accounting, insurance, legal, health, financial, manufacturing and retail trade institutions as well as the several political subdivisions from local, central school districts to the several state and federal government agencies.

Emphasis in the first week, Session I, is placed on COBOL fundamentals including basics of programming, file structures and developing practical use of the COBOL skeleton. No previous knowledge or experience are assumed for Session I. The second week stresses more advanced programming techniques, more advanced topics in file structures, sort and merge, table handling and modular and structured programming. Knowledge of and experience with the basics of COBOL are assumed for Session II. The course is an integrated two week course but registrations may be made for either Session I or Session II or both Sessions in accordance with the following schedule.

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|----------------|--------------|-------|
| Session I | August 16-20 | \$500 |
| Session II | August 23-27 | \$500 |
| Session I & II | August 16-27 | \$900 |

For further information and to register please contact: Professor Henry Chessin, State University of New York at Albany, Department of Physics, 1400 Washington Avenue, Albany, NY 12222